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THE SPARK

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DEPARTMENT OF
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UNIVERSITY COLLEGE OF ENGINEERING KAKINADA (A)
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

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SMART INDIA HACKATHON



Team : Smart Spark. (5th place in internal Hackathon.)

Problem Statement : Detection of microplastic in water.

Team Members: J. SUDHEER (lead)

K. S. C. DURGA LAKSHMI, R.HANSIKA, P.HARIKA, MD. AZEEM, A. ADARSH from EEE, III B.Tech .

The Microplastic Detection System demonstrates how low-cost hardware combined with advanced AI techniques can create scalable, impactful environmental solutions. This initiative not only supports India's mission toward sustainable innovation but also represents a step forward in democratizing access to water quality monitoring technology.



Team : Sky medic (11th place internal hackathon)

Problem Statement : To develop a disaster response drone.

Team Members: D. RAJA GOPAL SAI (lead)

P. PRANEETH, P. MAHITHA, P. PRISKILLA from EEE, III B.Tech .G. YASWANTH from ECE III B.Tech, N. VARDHAN from CSE AIML (ICP)

This team is developing an AI-powered drone system to deliver medical supplies and communication devices to remote disaster zones. Equipped with real-time navigation and obstacle avoidance, it can carry up to 5 kg safely through challenging terrain. A mobile app will help disaster teams coordinate deliveries, aiming to cut response times by 20% in inaccessible areas.



Team : Team Resilient(15th place internal hackathon)

Problem Statement : Student Innovation: Swadeshi for Atmanirbhar Bharat-Smart Vehicles

Team Members: M. YASWANTH SURYA (lead)

V. HEMA SARAYU, V. KAVYA SRI, V. SAI SRI, R.S.S KARTHIKEYA, S.M SANTOSH REDDY from EEE, III B.Tech .

A low-cost IoT safety system using sensors monitors temperature, humidity, oxygen, and presence inside locked vehicles. If unsafe conditions are detected, it triggers alarms, sends SMS alerts, and can crack windows automatically. Powered by ESP32/Raspberry Pi Pico, it offers an affordable ₹1,000 life-saving solution for cars and buses.

VIRTUAL INTERNSHIPS

- Ankana Adarsh, 3rd B.Tech, UCEK, JNTUK, had successfully completed a three-week virtual internship on "Embedded Systems, IoT & PCB Designing". The program was organized by IIIRPD, Hyderabad, in technical co-sponsorship with the IEEE Robotics and Automation Society Hyderabad Section Chapter and the IEEE Communication Society Hyderabad Section Chapter.

Energy-Efficient Motors

A Key to Sustainable Industrial Operations

Electric motors are a crucial component in many industrial applications, consuming a significant portion of the world's electricity. Energy-efficient motors, designed to minimize energy losses and optimize performance, offer a promising solution to reduce energy consumption and greenhouse gas emissions.

Benefits of Energy-Efficient Motors:

1. **Reduced Energy Consumption:** Energy-efficient motors consume less energy, resulting in lower electricity bills and reduced operating costs.
2. **Lower Greenhouse Gas Emissions:** By reducing energy consumption, energy-efficient motors contribute to a decrease in greenhouse gas emissions and mitigate climate change.
3. **Increased Reliability:** Energy-efficient motors often have a longer lifespan and require less maintenance, reducing downtime and increasing overall reliability.
4. **Cost Savings:** The energy savings from energy-efficient motors can lead to significant cost savings over the motor's lifespan.

Types of Energy-Efficient Motors:

1. **High-Efficiency Induction Motors:** These motors use advanced materials and designs to minimize energy losses and optimize performance.
2. **Permanent Magnet Motors:** These motors use permanent magnets instead of electromagnets,

reducing energy losses and increasing efficiency.

3. **Synchronous Reluctance Motors:** These motors use a unique rotor design to minimize energy losses and optimize performance.

Applications of Energy-Efficient Motors:

1. **Industrial Machinery:** Energy-efficient motors can be used in various industrial applications, such as pumps, fans, and conveyors.
2. **HVAC Systems:** Energy-efficient motors can be used in heating, ventilation, and air conditioning (HVAC) systems to reduce energy consumption.
3. **Electric Vehicles:** Energy-efficient motors are essential for electric vehicles, enabling longer driving ranges and reduced energy consumption.

Conclusion:

Energy-efficient motors offer a promising solution to reduce energy consumption and greenhouse gas emissions in various industrial applications. By understanding the benefits, types, and applications of energy-efficient motors, industries can make informed decisions to adopt these motors and contribute to a more sustainable future.

24021A0202

K. Dedeepya Srinivas

The Rise of Nepal's Gen Z: A New Wave of Youth Protest

Nepal's Gen Z-led protests in September 2025 became the most disruptive social unrest in the country in decades, toppling the prime minister and resulting in dozens of deaths and hundreds of injuries, with the movement largely driven by frustrations over social media bans, corruption, youth unemployment, and elite nepotism.

Background:

The government of Nepal banned 26 social media platforms, including Facebook, X, and YouTube, citing failure to comply with new registration regulations linked to digital taxes, but many saw this as an attempt to stifle dissent regarding growing criticism of corruption and privileged "Nepo Kids" of politicians.

Nepal's youth, struggling with high unemployment and economic hardship, rely heavily on social media for communication, information, and activism, making the ban especially incendiary.

The Protest Movement

Protesters were overwhelmingly aged 13 to 28—classified as Generation Z—and self-organized through online platforms before the ban.

Thousands, including schoolchildren, rallied in major cities like Kathmandu, Pokhara, and Itahari, initially demanding the lifting of the social media ban and an end to corruption.

Following the use of force by police—including live ammunition, water cannons, and tear gas—the protests escalated, with government buildings and homes of politicians set ablaze.

At least 19 to 51 people were killed, hundreds injured, and a nationwide curfew was imposed while the army was deployed to maintain order.

Impact and Aftermath

Prime Minister K.P. Sharma Oli resigned along with his cabinet, and Nepal entered a period of military-led interim governance as activists and army leaders discussed the formation of a new civilian administration.

Key Demands:

- Immediate lifting of the social media ban.
- End to government corruption and nepotism.
- Greater economic opportunities and improved youth employment prospects.

24021A0201

A .Prasanth kumar

What About America ?

India vs Pakistan

as we know the India and Pakistan are not having any deals for import and export. since many years we are not expecting what they do against us. Recently we faced an attack that was so Terrible. if we compare both growth rate our country far away to it. Pakistan having a major issue. The issue between Pakistan and Balochistan is a conflict between the Baloch people's desire for autonomy (or independence) and the Pakistani state's control over the region, especially its natural resources and strategic location. The present situation is they are fighting with their own Balochistan people . And almost many soldiers lost by this conflict. their position according to the gloval organisations are not good. At last they fight against us and they facing major issues globally.



India vs Maldives

India and Maldives are neighbours sharing a maritime border. India continues to contribute to Maintaining security as well as providing financial aid on the island nation. However, tensions have increased as president of Maldives Mohamed Muizzu has imposed an "India-Out" campaign and the country is deepening ties with China. Along with this, recent incidents of ministers of the Maldives insulting the islands of Lakshwadeep and the prime minister of India, Narendra Modi have heightened tensions. Because of this conflicts Indians are not visiting Maldives. Their GDP mainly depends on tourism , almost 50% of tourism decreased due to this conflicts. Tourism, representing about 21 percent of GDP. There is a big reason why the Maldives is looking at Prime Minister Narendra Modi's visit with great hope—it wishes that Indian tourists get the message and start coming again in big numbers to enjoy its exotic islands and turquoise blue waters. Tourism from India to the Maldives has dropped by almost 50 per cent.



India vs Nepal

The India and the Nepal initiated relations with the 1950 Indo-Nepal Treaty of peace and friendship. Although both countries maintain close cultural ties, Nepal has seen a shift towards a China policy in the recent years. The theory of Greater Nepal, which aims to merge parts of Uttarakhand, Himanchal Pradesh, Bihar, West Bengal into Nepal has been a source of contention between both countries. In recent days Nepal's Prime Minister KP Sharma Oli has once again reignited the debate over Lord Ram's birthplace, asserted that Ram, along with deities like shiva and sage Vishwamitra, originated Nepal.



India vs Srilanka

India and Srilanka sharing border between countries. Recent days the Tamilians are going heavily Srilanka So the Indian population is being increased. Relations have been tested by the Srilankan war and the controversy of Indian intervention during the war. In recent years Srilanka has moved closer to China especially in terms of naval agreements. The two countries are also close on economic terms with India being the island's largest trading partner. But this controversy makes them down fall in all aspects. The cost of the all materials was increased due to its unstable market value.



What About America ?

However their fate was not good . Recently Gen Z in Nepal recently protested against Prime Minister KP Sharma Oli (and the political system more broadly). The social-media ban was the spark, but the anger runs much deeper Many feel that corruption has become systemic. Deals, scandals, misuse of public funds are frequent and rarely punished. whatever their present calamities are destroying their country economy.

India vs America (perception)

The US's relationship with India - the world's most populous country - is "stronger, closer and more dynamic than any time in history", Mr Biden said at the completion of a pomp-filled state visit by Mr Modi to the White House. The India-US relationship has seen many ups and downs since the US seriously began courting India - first under President Bill Clinton and then under the George Bush administration. The response from India was measured, never overeager or too forth coming . The reason was the way India saw geopolitics and its own place in the global order. The strategy of nonalignment, started by India's first prime minister Jawaharlal Nehru, has always been deeply rooted into India's foreign policy. Under Biden, Indian exports to the US reached an all-time high in FY2023, with overall trade estimated at US\$128.55 billion, making the US India's largest trading partner. A number of new deals and technology partnerships were initiated during Biden's and Modi's administrations. In 2023, India and the US agreed to co-produce General Electric's F414 jet engines, augmenting the operations of India's light combat aircraft Tejas. Hindustan Aeronautics Limited (HAL) and GE Aerospace are set to co-produce 99 F414 engines in India, with initial deliveries from GE and subsequent units manufactured domestically under a transfer-of-technology agreement.



In 2025, India repeatedly rejected mediation offers from former U.S. President Donald Trump regarding both the India-China tensions and the India-Pakistan conflict. Prime Minister Modi clearly conveyed India's position in June and reiterated it in Parliament after the Pahalgam attack in July. While the U.S. initially supported India's right to respond, tensions grew over conflicting claims about the May ceasefire with Pakistan. The Trump administration and U.S. media credited American diplomacy for the truce, which Indian officials strongly denied.

On July 30, Trump imposed 25% tariffs on Indian goods, with an additional 25% penalty over India's defense and energy ties with Russia, bringing total tariffs to around 50%—excluding exceptions like pharmaceuticals and rare-earth minerals. Trump also criticized India's continued oil trade with Russia and backed a proposed energy deal with Pakistan. He called the Indian economy “dead” amid stalled trade talks.

India's Ministry of External Affairs condemned the tariffs as unjust and emphasized that its oil imports from Russia were essential for national energy security, especially given global supply disruptions. It also pointed out the West's ongoing trade with Russia, despite sanctions. Trump's actions, reportedly driven by personal frustration over India's refusal to accept his mediation, have triggered a tariff war that risks harming both economies. I hope both nations can reduce tensions, end this tariff escalation, and open new avenues for trade and cooperation.



Written by:

KADIME VIJAY

III B.Tech 23021A0219

EVENTS AND WORKSHOPS



Prof. K. Venkata Reddy, Head of the Department of Electrical and Electronics Engineering, attended INYAS Mid-Year Meeting 2025 held at Vellore Institute of Technology (VIT) in September 2025. The inaugural session brought together distinguished academicians, researchers, and industry experts from across the country to discuss emerging trends in science, technology, and innovation.

Students from the II and III B.Tech programs participated in a prestigious 2-day hands-on workshop on UAV Design, Assembly, and Flight Operations on 18th-19th September 2025. Organized by the School of Avionics, IST, JNTUK, under the Design Innovation Centre with government support, the event involved collaboration with TiHAN IIT Hyderabad and ByDRONES IIITDM Kurnool. Led by Prof. A. Gopala Krishna, the Directorate drives innovation and prepares students to be global innovators while contributing to India's technological growth.



A Two Day Workshop on **“Smart Grid based Micro-grid Design & Development”** Organized by Department of Electrical & Electronics Engineering,

University College of Engineering, Kakinada (A),

JNTUK with **Vellore Institute of Technology (VIT)**, Vellore, convenor Dr. K. Venkata Reddy **Professor & Head of the Department**. Attended by M.Tech, IV B.Tech and Faculty of EEE department.

Resource Persons of this workshop are Dr. M. Venkatesan **Associate Professor** and Dr. A. Srinivas Rao **Assistant Professor, National Institute of Technology, Andhra Pradesh** on 22 and 23rd September 2025 at JNTUK EEE Department in new seminar hall.

As part of the department's continuous commitment to campus development and community service, III B.Tech EEE Department actively participated in a pathway construction activity at the backside area of the campus. The space, which previously remained uneven and difficult to access, was identified for improvement to ensure safer and more convenient movement for students and staff. The students worked diligently to ensure proper alignment and compaction, thereby establishing a firm and durable base for the interlocking tiles. Their collective efforts resulted in the creation of a functional walkway that enhances both the aesthetics and utility of the area.



NPTEL DT&I (III B.TECH)

Congratualtions to III B.Tech students on successfull completion of NPTEL DTI course



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GOPANABOYANA BHAVITHA
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GORTA SATYA SWAROOPA
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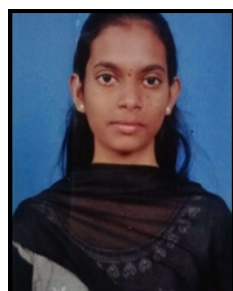
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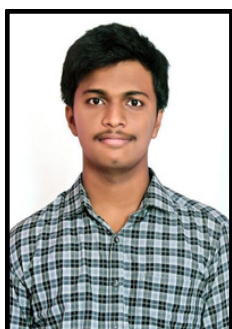
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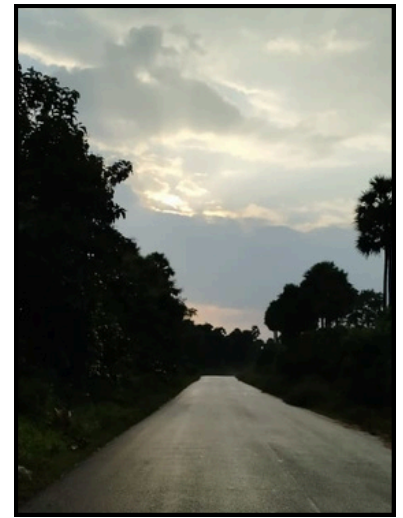
PHOTOGRAPHY



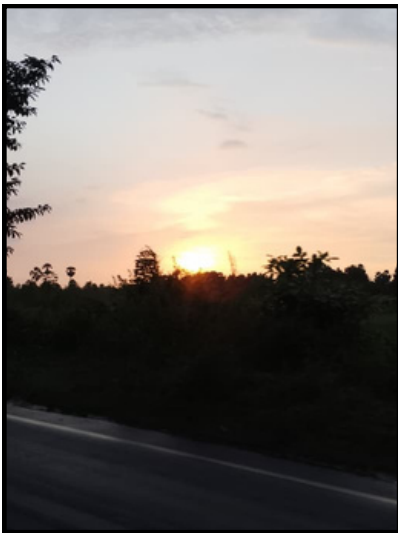
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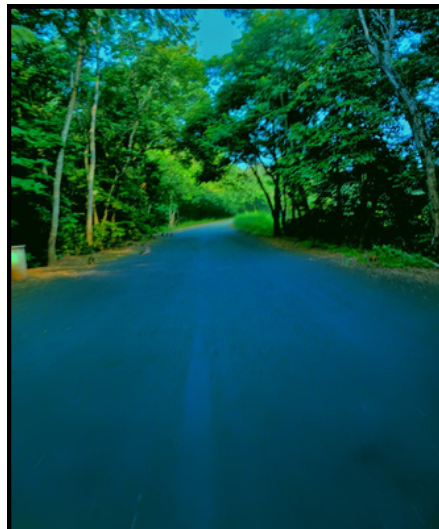
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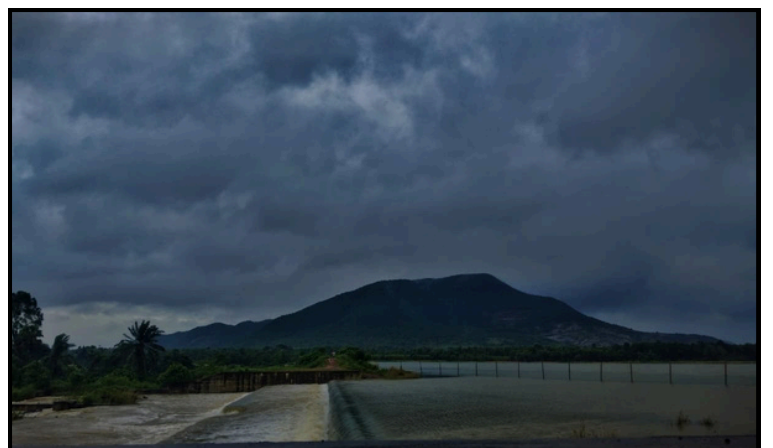
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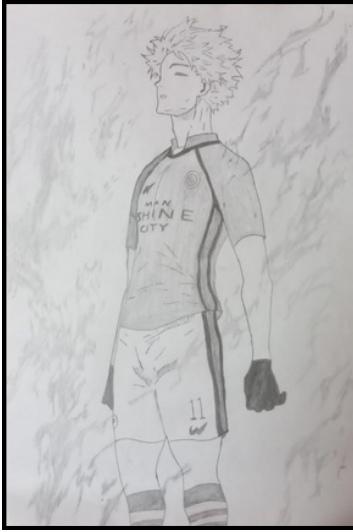


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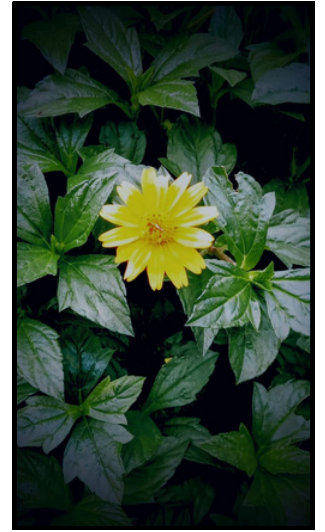
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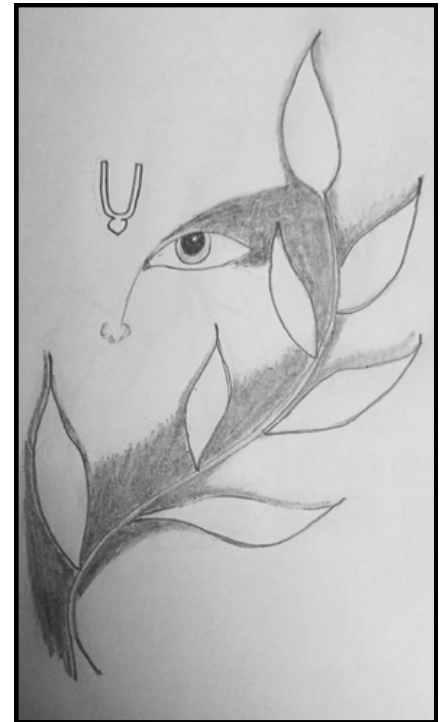
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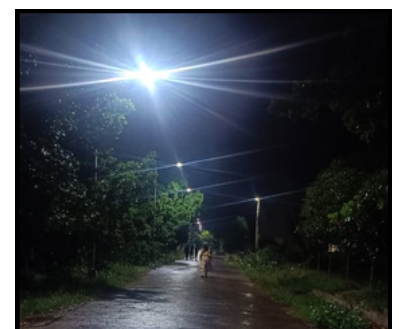
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